CLAIMS

1. Cubic boron nitride containing magnesium in an amount from 2×10^{-4} mol to 2×10^{-2} mol per 1 mol of cubic boron nitride.

2. Cubic boron nitride as claimed in claim 1, wherein the cubic boron nitride contains magnesium in an amount from 2×10^{-3} mol to 2×10^{-2} mol per 1 mol of cubic boron nitride.

3. Cubic boron nitride as claimed in claim 1 or 2, wherein the cubic boron nitride contains magnesium in an amount from 2×10^{-3} mol to 5×10^{-3} mol per 1 mol of cubic boron nitride.

4. Cubic boron nitride as claimed in any one of claims 1 to 3, wherein a mean particle size of the cubic boron nitride is 10 μm or less.

5. A method for producing cubic boron nitride in which hexagonal boron nitride is held in the presence of a catalyst substance under conditions in which cubic boron nitride remains thermodynamically stable, to thereby cause hexagonal boron nitride to undergo a phase transition to form cubic boron nitride, wherein the catalyst substance contains a lithium source, a magnesium source, and a carbon source, and the catalyst substance contains magnesium atoms in an amount of 5 to 300 parts by mole, and carbon atoms in

an amount of 0.5 to 30 parts by mole, based on 100 parts by mole of lithium atoms.

6. A method for producing cubic boron nitride as claimed in claim 5, wherein the catalyst substance contains magnesium atoms in an amount of 100 to 300 parts by mole based on 100 parts by mole of lithium atoms.

7. A method for producing cubic boron nitride as claimed in claim 5, wherein the catalyst substance contains magnesium atoms in an amount of 5 to 85 parts by mole based on 100 parts by mole of lithium atoms.

8. A method for producing cubic boron nitride as claimed in any one of claims 5 to 7, wherein the lithium source is at least one selected from the group consisting of metallic lithium, lithium nitride, and lithium boronitride.

9. A method for producing cubic boron nitride as claimed in any one of claims 5 to 8, wherein the magnesium source is at least one selected from the group consisting of metallic magnesium, magnesium nitride, and magnesium boronitride.

10. A method for producing cubic boron nitride as claimed in any one of claims 5 to 9, wherein the hexagonal boron nitride has an oxygen content of 1 mass% or less.

11. A method for producing cubic boron nitride as claimed in any one of claims 5 to 10, wherein the carbon source is at least one selected from the group consisting of graphite, carbon black, amorphous carbon, and a hydrocarbon organic compound.

12. A method for producing cubic boron nitride as claimed in any one of claims 5 to 11, wherein the carbon source is in the form of powder.

13. A method for producing cubic boron nitride as claimed in any one of claims 5 to 12, wherein 2 to 50 parts by mass of the catalyst substance is added to 100 parts by mass of the hexagonal boron nitride, and the hexagonal boron nitride containing the catalyst substance is held under conditions in which cubic boron nitride remains thermodynamically stable so as to cause the hexagonal boron nitride to undergo a phase transition to form cubic boron nitride.

14. A method for producing cubic boron nitride comprising a step of pulverizing the cubic boron nitride as claimed in any one of claims 1 to 3 so as to obtain cubic boron nitride having a mean particle size of 10 μm or less.

15. A method for producing cubic boron nitride as claimed in claim 14, further comprising a step of classifying the pulverized cubic boron nitride so as to obtain cubic boron

nitride having a mean particle size of 10 μm or less.

16. Cubic boron nitride produced by a method for producing cubic boron nitride as claimed in any one of claims 5 to 15.

17. A grinding wheel comprising cubic boron nitride as claimed in any one of claims 1 to 4 and 16.

18. Sintered cubic boron nitride compact comprising cubic boron nitride as claimed in any one of claims 1 to 4 and 16.